

ARCHITECTURE

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W. STANTON ROBINSON PERSPECTIVES

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THE ENGINEERING BUILDING AND CLUB.

IN publishing the competitive drawings of the Engineering Building and the Engineers' Club we are presenting the results of a most notable and important competition and one which cannot fail to interest the profession. The plates show the elevations, sections and plans of various competing architects. The designs of Herbert D. Hale, to whom the award for the Engineering Building was given, and Whitfield & King, who were chosen to erect the Engineers' Club, are not shown owing to a request of the Committee that they should not be given to the public at this time. These will appear in a subsequent issue of ARCHITECTURE.

Mr. Carnegie has given to the engineers \$1,500,000 for the erection and equipment of two buildings. The Engineering Building will occupy a plot 125 feet wide and 100 feet deep in West Thirty-ninth Street and will be used as headquarters of the American Society of Mechanical Engineers, the American Institute of Mining Engineers and the American Institute of Electrical Engineers. Auditoriums, libraries and rooms for the exhibition of mechanical and electrical appliances are to be provided.

Facing in Fortieth Street, with a front of 50 feet and depth of 100, will be the Engineers' Club. The two buildings will be close together, the sites being occupied by Nos. 25 to 33 inclusive in West Thirty-ninth Street, and Nos. 32 and 34 in West Fortieth Street, making seven city lots in all. The various societies have raised about \$700,000 with which to pay for the land and additional funds for furnishing the buildings. Of the money given by Mr. Carnegie, \$1,200,000 will be used for building the club and the institute, and the balance will be expended in furnishings and equipment. The total expenditure will be \$2,500,000 for buildings and site.

It was the wish of Mr. Carnegie that there should be a mixed competition. Six architectural firms were chosen to submit drawings: Messrs. Ackerman & Partridge, Carrere & Hastings, Clinton & Russell, Lord & Hewlett, Palmer & Hornbostel, and Whitfield & King, and an open class was created for architects throughout the country. A conference committee, selected from the three organizations, received 26 complete sets of plans for the two buildings. They were advised by Professor William R. Ware, formerly in charge of the School of Architecture at Columbia University.

PROFESSIONAL COMMENT.

THE plan for the Jamestown Ter-Centennial Exposition was prepared by Messrs. Brinley and Holbrook, Jules Vacherot, of Paris, Chief of the Service of Parks and Gardens, Paris Exposition of 1900, being associated with them. The plan was prepared at the request of the Jamestown Exposition Co. and was shown to the Committee on Art and Expositions of the United States Congress in March, 1904, at which time a request was made for an appropriation.

AT last a work has been published by the insurance interests, which will at least explain to the architect the insurance man's point of view. "Fire Insurance and How to Build," by F. C. Moore, ex-president of the Continental Insurance Company, covers both subjects with great thoroughness. It has been prepared with particular reference to the needs of architects and builders. It explains precisely what the fire insurance man wants the architect to do and what rates he will get if he does it. The wants may seem unreasonable to the architect at times, but for the first time they are

explained thoroughly, and the architect can judge if it is best for his client's interest to come up to these requirements or to take the consequences.

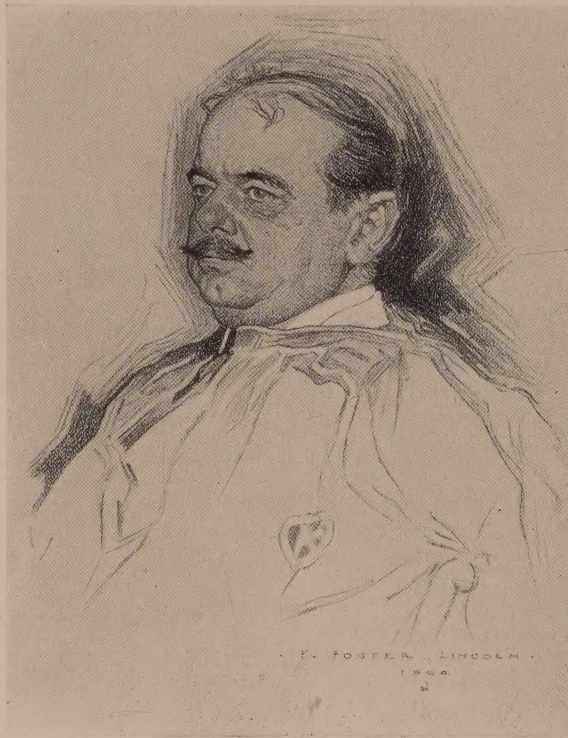
THE fight over the designs for the new Manhattan Bridge is not yet ended. The Municipal Art Society is making an effort to extricate the Art Commission from its predicament, by having a special commission of experts appointed to pass upon the merits of the old and new designs, giving due regard to both the engineering and architectural problems involved. Notwithstanding that the first design by Messrs. Lindenthal and Hornbostel is the only one that has the stamp of official artistic approval, an appropriation has been made by the Board of Aldermen of \$10,250,000 for executing the second design, upon which Messrs. Carrere and Hastings have provided the architectural service. It is plainly up to the Bridge Commissioners to show that the original design is impractical from an engineering standpoint. Architecturally Messrs. Lindenthal and Hornbostel's design would give the metropolis one of the most superb suspension bridges in the world.

RECENTLY we happened to pick up a number of "Municipal Affairs" published in March, 1898, which contained the initial article on the Reformation of New York's plan by Julius Harder. This article, and a subsequent one by the same author on "Municipal Improvements" for October, 1899, shows that the writer was indeed a prophet "without honor in his own country." A large number of Mr. Harder's suggestions are now becoming accomplished facts; and in the light of New York's present development, it is interesting to note that he predicted the new bridges and their connecting streets, the Union station in the center of the City, the tunnels across the City connecting Jersey City with Long Island, and the underground highway to Brooklyn from the Battery. Agitation is now rife for the broad highway which the article claimed would be necessary to connect the Williamsburg Bridge with some central distributing point such as Union or Cooper Square, and the prediction that the City must sooner or later construct a Municipal center at about Fourteenth Street may still be realized.

THE Society for the Preservation of Scenic and Historic Places has done good service in and around New York, and it is to be hoped that its activities will be made to extend over a larger area. There is a scheme on foot to radically alter the old church in Richmond, Virginia, where Patrick Henry bade defiance to George the Third; but, fortunately, it has been heralded

throughout the nation, and it is likely that sufficient pressure will be brought to bear upon the municipal authorities of Richmond to prevent this act of vandalism. The most interesting examples of the ecclesiastical architecture of the colonies are to be found south of Mason's and Dixon's line, and the pride of our Southern people in their early history has preserved most of them intact. This sentiment is not shared by the descendants of the Knickerbockers, and the municipal authorities of New York are again tinkering with the historic City Hall. Fortunately the exterior is to be let alone, so that New Yorkers will still have this excellent example of all that was good in the American architecture of the early part of the Nineteenth Century intact in its most important features. It has, unfortunately, become a habit with successive political administrations of New York, for each mayor to attempt to leave his stamp on this historic building.

The city authorities have failed to appreciate this excellent building. At the time of its original construction by McComb he was compelled to face the rear of the building with brown stone, instead of being able to use the marble which was employed in the main facades. The side that faces the County Court is now painted white, so that the difference in material is not specially apparent; and local historians seem to differ as to the original reason for the change. The common story is that the City Fathers considered the rear of but minor importance, as it was anticipated that the city would not grow to any extent beyond the limits of Chambers Street; but an examination of the old maps will show that the Bridewell, or City Prison, stood immediately back of the City Hall, and the quadrangle between the two buildings was surrounded by a wall which served as the prison yard. Court-rooms were provided within the City Hall, and the prisoners were taken



Architects of To-Day.

MR. HENRY P. KIRBY.

across this yard without an opportunity for escape. Brown stone was therefore good enough. This is not as interesting a story as the aldermanic theory of the limitations of New York; but it is nearer the truth.

New York still possesses two old churches which are sufficiently good examples of the Wren type to merit preservation. The most important—St. Paul's, opposite the junction of Broadway and Ann Street, and the only one of the two with historical associations—is secure from all attempts on the part of the restorer, and is well cared for by Trinity Parish. It is in a busy and important part of the city, surrounded by a peaceful churchyard, forming an oasis in the busy rush of Broadway. But St. John's, in Varick Street, is hardly known, even to the average New Yorker. Its picturesque apse is seen by thousands at the end of a blank street, as the elevated train rushes by

just below Canal Street. Its spire rises high above the mass of surrounding warehouses, but its really beautiful west front is hidden from the view of the average man, and faces on a street which was once the heart of fashionable New York, but which now is rarely visited except by truckmen on their way to the freight station, in what was once the exclusive neighborhood of St. John's Park.

IN the August Scribner's, Mr. Ernest Flagg suggests the reformation of the City by constructing a formal parkway through the length of Manhattan Island, the Municipal Art Society has already discussed its schemes at length both in the public press and in the reports sent out to its members; the Municipal Commission appointed by the Mayor to present a scheme for a comprehensive plan of Municipal improvement is at work. Public sentiment is at last being aroused and someday New York is likely to be beautiful as well as great.

THE observant young men who report political conventions for the New York Sun allow nothing to escape them. The man who covered the Democratic National Convention at St. Louis had time to record a number of interesting items which were not exactly germane to the political situation. At this time when the city plan not only of New York, but of nearly all of our cities, is receiving a large amount of careful consideration from professional men, we find the opinion of the critics almost unanimous in deploring the lack of uniformity in municipal restrictions, and, bearing this in mind, the following description of how they manage it in St. Louis may be of interest in other cities:

"In parts of the city where conditions justify it, the property owners club together and purchase all of the land on both sides of the street for a distance of a half or three-quarters of a mile. Having obtained control of the land they form an association and apply to the city for permission to close the cross streets and restrict the traffic in the street which they desire to improve. Then the property owners adopt a set of regulations governing the erection of houses in the street, establishing a building line, well back from the curb, and fixing a grade. Then the street is widened, and a handsome park is laid out through the centre, the roadways running on each side. The owners then employ a landscape gardener to care for the park, which is set out with flowers and shrubs. At each entrance to the street a lodge and gate is erected. Each householder is under obligation to keep his grounds in the best order, and no one is permitted to build a house or arrange his grounds in such a way as to detract from the appearance of the street. The public benefits in having placed at its disposal a number of parks for which it pays nothing, but which it is perfectly free to enter at any time. So far, the idea has been applied only to streets in which the wealthy people live, but there is a movement on foot to have it extended to places where houses would be of more moderate cost."

Popular interest in architecture seems to be mainly centered at this time in the city plan and the formal garden. Both the technical and the non-technical press teem with articles on this subject, and if suggestions and schemes will cure the evils of New York's dismal plan of parallelograms the aesthetic future of the metropolis is assured.

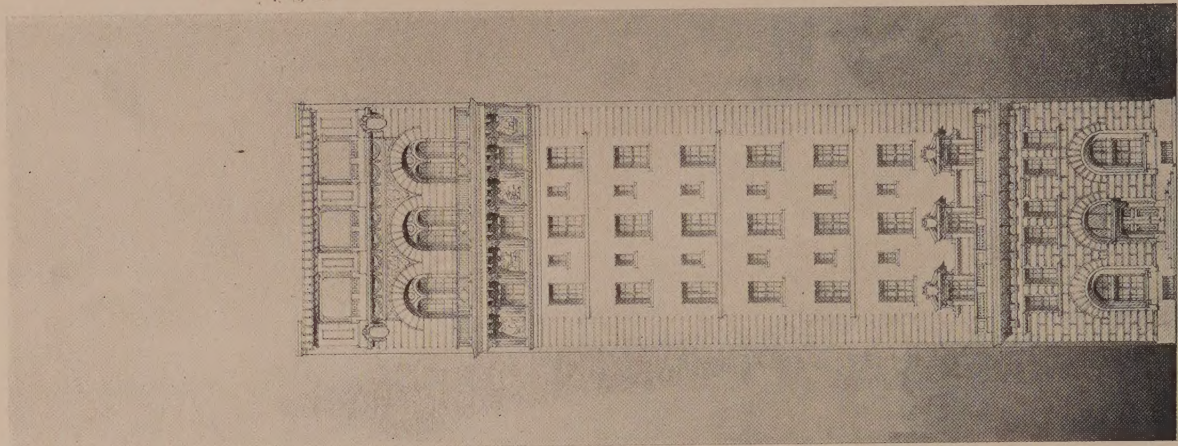
HOSPITAL building in process and in contemplation throughout the country is almost epidemic. New York City is planning its new Bellevue, designed by McKim, Mead & White, and which when completed will have few rivals in the world for size and completeness of equipment. It will occupy three entire city blocks and provide accommodations for nearly twenty-five hundred patients and cost some ten million dollars. The National Association for

the Study and Prevention of Tuberculosis is encouraging the building of sanatoria for the treatment of their specialty throughout the land. The technical press of the country indicates the number of new hospital buildings being erected. The change in modern methods of medical treatment is causing nearly all of the older institutions to become obsolete, making the erection of modern structures a necessity. The new hospital is invariably built on the pavilion plan, and presents many difficult problems for the architect to solve, mainly for the reason that the maximum amount of economy of operation is required in a plan which is apt to increase in running expenses in exact ratio with which it conforms to the latest medical opinions on the subject. Statistics show that it requires one and a half people on the hospital staff to care for two patients. Caste is as distinct among the members of the staff as among the people of India: and the architect must provide carefully-designed quarters for each stratum, guarded from each other and grouped around a central administration within easy reaching distance of all. The wards must be provided with light and air on all sides, and they in turn divided, not only as to sex, but also with reference to the class of cases to be treated, which, together with the problem of supplying and transporting food from a central kitchen, requires the exercise of a large amount of ingenuity on the part of the designer.

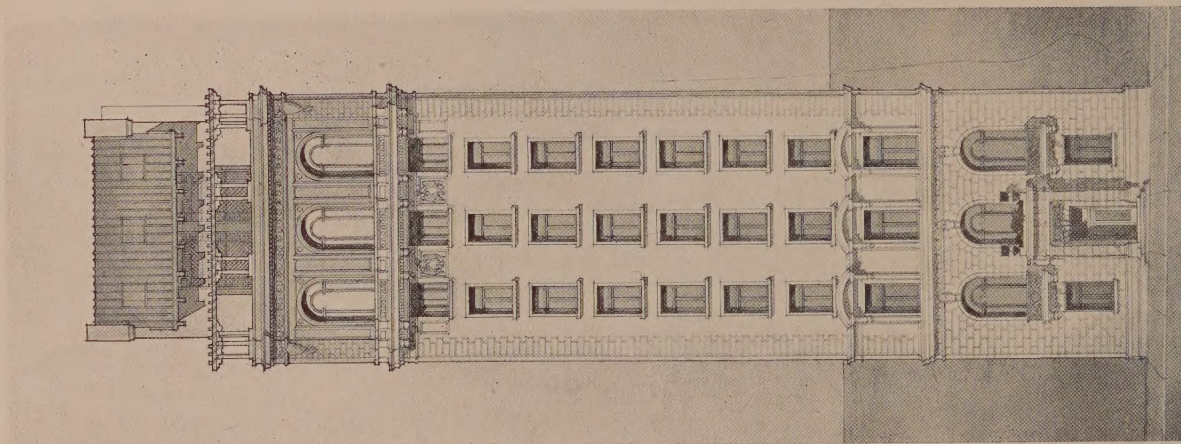
EXPEDIENTS IN BUILDING.

IF we compare American with English methods of building and architectural practice, we must acknowledge that our American cousins are more resourceful, that they are not slow in introducing new ideas or mechanical improvements in their building operations, and that they are more expeditious in the work than we are, says the *London Building News*. In building, as in other things, the American places his business first, his pleasure afterwards. In a paper read some time ago at the Society of Arts, by Mr. Charles Heathcote, F.R.I.B.A., on this subject, the author referred to the fact that the architect in the States completes his drawings and details as soon as possible, so that the contractor may know at the earliest moment what he has to do—a practice that certainly does not prevail in this country, where the contractor often has to wait some time after the contract is signed for his detail drawings. Speed is all-essential. With the detail drawings before him the contractor can better organize his forces, and place his work in the hands of men who are fully competent to undertake any special or difficult design, and in this way building operations are advanced. Rapid building is to many large commercial firms of the utmost importance in a pecuniary sense, and they do not hesitate to pay for the advantage. It is worth the architect's while to assist his employers in this way, while the builder and workmen engaged are encouraged to exert themselves, and to do their best to expedite the work. The same love of speedy execution and energy does not animate the British workman or builder, as we have seen in the story of bricklaying and in engineering industries; our firms do not encourage the clever craftsman or the architectural assistant or clerk of works as they are encouraged in America. Somehow we are slower in appreciating their natural aptitudes; if a workman or an architect's assistant does not do one thing well, it is assumed he is inferior in all other departments, whereas it is not so. A man is often a stupid or slow draughtsman or accountant, who has a real talent for organization, and would turn out a good superintendent; or he

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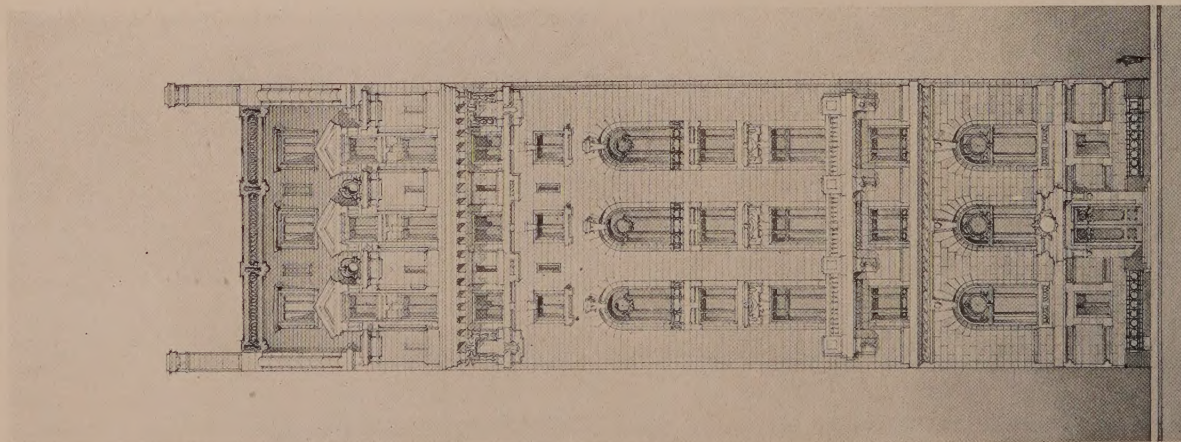


Carrere & Hastings, Architects.



Clinton & Russell, Architects.

COMPETITIVE DESIGNS, ENGINEERS' CLUB BUILDING, NEW YORK.



Lord & Hewlett, Architects.

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may be a bad manager, but an expert draughtsman. Remunerative employment is assured to the capable man in America, so that the more expert and smarter he is the better he is paid. The English workman or architectural assistant has not this inducement: he cannot exercise his skill on anything he is fit for unless he has served an apprenticeship; few firms will take him, however clever he is at a particular thing, unless he has several testimonials, which may be worth very little.

There are several expedients in building which we have been slow to take advantage of. American manufacturers have introduced labor-saving machinery into many building operations and trades, and this is one way in which they have taken the lead of us in large contract and engineering works. Our large firms and manufacturers are now beginning to see the advantages of machine labor from a commercial point of view, and are availing themselves of it in concrete-making, brick-making, joinery, stone-sawing and moulding, and other processes. In ironmongery many of our goods are American and of the latest type, though not so durable as our own. One of the greatest facilities for building which we have adopted of late years is the steam-crane system. By fixing the crane on an elevated and central position on the building site, or on a derrick constructed of framed timber, heavy masonry, iron and timber are lifted and swung round to any point and deposited within the radius of the jib. It would be unnecessary here to allude to various processes of wall building, fireproof floors and roofs, which greatly expedite the construction of buildings. In the United States steel construction, combined with concrete wall filling-in or tile work, has accomplished much. The coupling-up of steel stanchions is a rapid process which means the completion of a skeleton structure in very little time. All these things have tended to greater speed in building, with a certain loss of those qualities which the English prize more—solidity and durability. Our supremacy as an industrial nation has blinded us to improvements which our transatlantic friends have not been slow to turn to their benefit. We thought what was good for our forefathers was good enough for us; that we were not likely to be beaten in the race. We are now beginning to see that we have placed too much reliance on this view, and that other countries are competing with us on very unequal terms. How to obtain the maximum output, or in other terms to save time, is the chief aim with the American builder and architect. With him it outweighs extra cost in wages; so the latest machine or hoisting machinery is of the greatest importance. Economy of labor is the leading aim. Building at high speed is not a condition of things we can desire, and we deplore it for many reasons. "Speeding up," as the Americans call it, is not conducive to thoughtful or substantial building, but it is one of the factors which modern demands have made necessary. The architect must take advantage of expedients not only in mechanical and labor-saving appliances, but in designing. Expeditious means of draughtsmanship, the use of tables for saving calculation, such as those published by large iron manufacturers, giving the sizes for girders and rolled beams for certain loads and spans, manuals of formulæ and text-books on a variety of subjects, and improved instruments, are now common, though they are not generally made use of by architects, who happen to be very conservative in their requirements and habits. The preparation of drawings at an early date for the use of the builder is of the greatest consequence to him. A few weeks earlier delivery of the drawings and details may mean a large profit to the client or business firm. As a matter

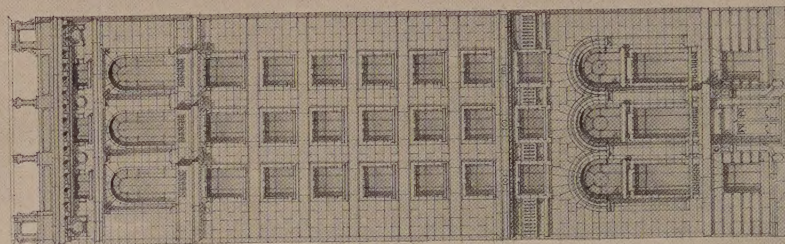
of fact, sometimes a detail is kept back because the architect wants more information about it, and he believes the building gains by the delay. Speed in the preparation of details presupposes a mind fully made up, and the actual facts at the disposal of the designer.

In our modern buildings, a system or principle of proceeding is required. We are supposing, of course, that the architect is not satisfied with copying another's plan, but that he really wishes to design his work on a rational basis. For example, in many kinds of building a germ or principle is obvious. Each has a function: a church has to hold a certain number of people in attitudes of worship and as listeners; the altar, choir and pulpit are the central or objective points; a theatre must have its auditorium planned for sight and sound; other buildings depend on a unit of accommodation as a germ of development.

There are a few ways by which an architect can compass great ends by small means, and in the planning and designing of many buildings, the expedient of reducing the accommodation and the complexity of the work to certain units is an instance. Take, for instance, a workhouse, a hospital, or infirmary for the sick. The latest experience and science have proved the value of classification of the inmates or patients of such institutions, and economical and scientific considerations have shown also that the most efficient buildings of this class are designed on the principle of considering the unit of accommodation, of determining the minimum of area or cubic space required for each patient, and from that initial fact, finding out the best shape and dimensions of a ward, or day-room, or dormitory for a certain number of individuals, having relation to economical administration. An architect who proceeded on the old plan of planning a hospital to accommodate so many patients on the principle of a dwelling or hotel, without reference to the unit requirements of each person, would find his labor costly and complex. Take any of the older plans of hospitals, and we shall find much area wasted or repeated—the wards wider than they need be, or too narrow for a double row of beds, thus entailing more space per patient than is absolutely necessary. But in those days cubic capacity and questions of ventilation were little regarded, and the plans of hospitals and workhouses were often haphazard arrangements based on unscientific principles of planning. By the germ theory of planning, if we may so call it, we arrange the ward-plan on the individual unit—that is, by defining the floor space and cubic space required for each patient, and multiplying this area by the number of patients which a ward can conveniently contain without risk, and for effective administration. In this way we obtain what is termed the "ward unit," or the standard size of a ward for a given number of patients. The definition of this standard size for a ward is the keynote of a hospital design, for it is the aggregation of the ward units which compose each pavilion or block of a hospital. Real economy in construction in building and furniture and easy working are insured by the adoption of this principle. By determining, therefore, the size of the ward unit, the architect can proceed to dispose his blocks and pavilions in the most desirable manner. Assuming that each ward should accommodate a given number—say 24 or 30 patients—and the cubic floor space to be allotted to each patient is defined, also the height of ward, the architect has all the data necessary to plan a ward of the right length and width, which will become the standard size or unit of the buildings. Thus the area necessary for each patient is worked out by the size of the bed, its length and width, distance between adjoining beds, the central

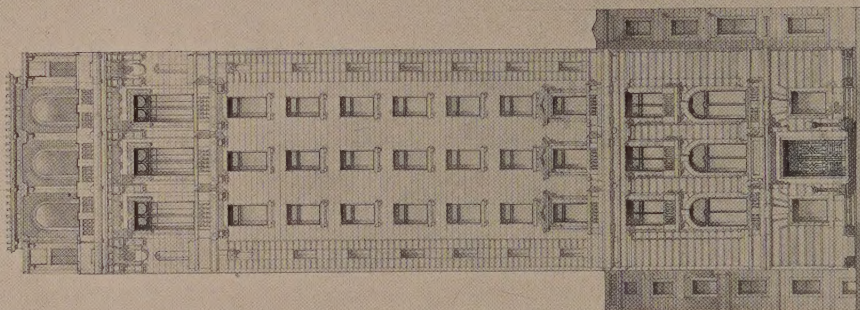
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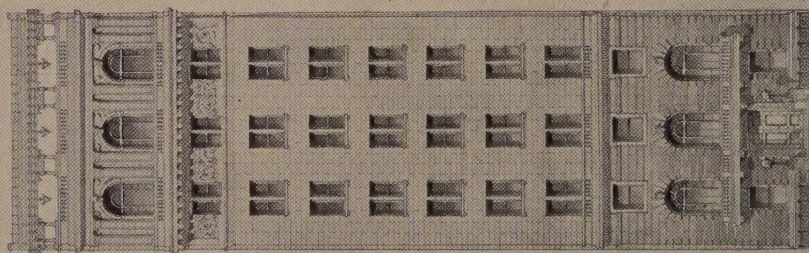
Palmer & Hornbostel, Architects.

ENGINEERS CLUB BUILDING.



Ackerman & Partridge, Architects.

COMPETITIVE DESIGNS, ENGINEERS' CLUB BUILDING, NEW YORK.



Trowbridge & Livingston, Architects.

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passage through ward, which multiplied by the height gives the cubic space, and any of these factors may be obtained by using the known factors in a simple equation. The same principle of finding or determining the unit of space applies to a school.

The earlier elementary schools were wasteful; the rooms were made too wide or without reference to the economical area or space for pupils; but now, having determined the working area and cubic space for each pupil, it becomes easy to find out a proper size of classroom for, say, 50 pupils. Thus, for infants, 9 square feet per child is considered sufficient, and 10 square feet for older scholars. The school is generally divided into departments for boys, girls and infants, with a stated proportion for each; and there must be sufficient classroom for the whole, besides a central hall to accommodate the whole number, allowing about 4 to 5 feet per pupil. A standard unit is thus defined for each pupil, and classrooms and hall are provided to accommodate the whole number. The old system was to build a schoolroom, and to crowd as many pupils within it as it would hold. The plan was easier, but it involved waste of space which could not be utilized. In the arrangement and number of seats and desks, the unit area allowance per child is also made the basis. These have to be graduated according to the ages of the pupils. Here, again, the unit of 18 inches per scholar will regulate the length of each group, which must be a multiple of 18 inches; or if a dual desk, 3 feet, 4 inches is the standard length. The lengths are limited to 12 feet, and the number of rows to five or six rows of dual desks; in fact, the size of each seat and desk is the initial unit of the plan. In the design of laboratories for technical schools, the unit of area or space per pupil and of the benches and other equipment is also the most economical plan to adopt; so in dwellings for the laboring classes. The right and expeditious method is to take the cubic space and requirements of each tenant as a unit which can be multiplied, instead of building a block with rooms having no relation to the number to be provided for, or the requirements of each individual. In other buildings, like churches, assembly-halls and theatres, the unit does not play so large a part in the design, except in the standing or seating accommodation; but these structures have each a function which has to be kept in view. In how many churches and chapels has the architect fully satisfied the condition of a large congregation being able to join in the services, to be in full sight of the sanctuary or altar, or of being able to see and hear the preacher? In many churches and places of worship a large proportion of the congregation are cut off by pillars or galleries. It must be remembered that every church is intended to provide for two functions—that of worship, with more or less ritual, and that of listening to sermons—and each has to be kept in-view in the design. Modern congregations are very different to what they once were, so that many of our old cathedrals and parish churches designed for Middle Age use are unsuitable in some respects for a large town congregation. In the modern theatre the architect has to seat a large number of persons within easy sight and hearing of the stage, to provide for their entrance and exit, and safety from fire—conditions which call for ability and skill; but he has expedients in the form of new constructional methods ready to his hand. These lead us to consider our modern expedients in construction, of which we can only allude briefly to iron and steel construction and reinforced concrete. In respect of both of these methods we are behind our American friends. We trust too much to the manufacturer; but in the States a qualified engineer is employed to test specimens, to inspect the rolling, and

to see that the stanchions, floors and other work are in order and put together in time for the contractor. Our methods of superintendence are not so complete. We employ one clerk of works, who does not know how far he can go in supervising certain sections of the work; whereas in many large works an able supervisor is required for each section, who, while well organized, must look ahead, and see that there is no delay through non-delivery of goods. There is now too much friction between the architect's office and the actual delivery, consultations with the architect, want of understanding, defective information, differences about detail, cost; the engineer or the manufacturer has to be consulted before the work is really put in hand. More organized labor and supervision would obviate all this; but the main remedy is to be found in the architect's preparation and power of organizing; in his early mastery and supply of the detail drawings, so that any discrepancy can be found at an early stage of the operations. In the United States these obstacles have been at least partially overcome by handing over to the builders the detail drawings of special parts of the work, by which to bridge over the gulf between the architect's and the builder's functions. It is found that full and complete drawings and specifications, ample superintendence, including testing, are requisites of economical and speedy building.

THE ARCHITECT OF TO-DAY.

J. A. FOSTER.

MANY and conflicting interests affect the profession of architecture at the present day. What with the questions of architectural education, statutory registration, competition reform, conditions of contract, and other subjects, the architect has enough to engross all his spare moments; for he must, to a certain extent, keep pace with these movements that are always going on outside his own special sphere. Nothing of the kind ever interrupted the calm tenour of the life of the architect of a previous generation. There were no such needs for restricting the entrance to the profession by examinations or registrations, few troubles about competitions; owners could build when and how they liked, without troubling about building by-laws, and other regulations imposed by authorities of the present day. With, perhaps, the two exceptions of sanitary and fire-resisting construction, our forefathers were not much the worse off; their buildings were substantial and comely in appearance, there were fewer men in the profession, so that the evils of competition were not felt; and although there were no facilities for professional education such as we now possess, the architects of half a century ago were often competent and able men. But they worked in limited spheres, and building was comparatively simple. And the trades employed in building were equally competent; the apprentice system was in vogue, and there was no undercutting nor overlapping of the trades. Several reasons exist for the change in the building trades;—they have become more numerous; but, despite our progress, we cannot supersede the principles of honest labor. One writer some time ago attributed the present incompetence rife in the building trades not so much to the labor as to the supervision. "Incompetent foremen and estimators, clerical routine instead of practical execution, a smattering of technical knowledge instead of experience—these are the evils of the trade, and, coupled with trading on borrowed capital, or working the jobs on the strength of the 'draws,' constitute the real crisis." How many real builders apprenticed to the trades as a whole are now found? There is much justice in the indictment; the whole machinery of

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BIRDS-EYE VIEW, JAMESTOWN TER-CENTENNIAL EXPOSITION, NORFOLK, VA.



(Continued from page 119.)

building is changed, the division of labor, mechanical routine, machine work, and over-supervision have taken away all individual effort and interest in workmanship. These are facts which lie at the root of the question. The experience of age and natural gifts of a man are no longer taken into account by the "big" firm of builders. The "too old at fifty" idea is another prejudice of the large firm; the experienced workman is superseded by young, but inefficient, men. We are living in an age of specialism, the natural outcome of divided labor and contracting on a large scale; and this is a question of importance which deeply concerns the profession. Already we have specialists in certain branches of building, and there is a likelihood that this tendency to split up the profession into branches will continue. It is partly the result of enlargement of the architect's field. A century ago the architect practiced in a few well-defined branches; now they have multiplied indefinitely. All those changes have considerably helped to destroy the cohesion of the older system, and to add immensely to the labor of the profession. The architect must now ask himself, on entering the ranks, "To which branch of practice should I belong? Is it wise to practice in all the branches—in other words, to become a general practitioner?" These and other questions ought to be asked before the young architect has finished his studies. We are afraid the keen competition among the younger members is a strong inducement to them to accept any class of work which is thrown in their way, and that it is a long time before the architect can afford to pick and choose work. In the present very varied practice of a general practitioner, it is hardly possible to master the types and details of every kind of building, and the consequence is a rather superficial acquaintance with certain structures. On the other hand, by confining one's attention to one class of architecture, the architect is able to grasp the principles of plan, and to devote his attention to its many details. No doubt there is a disadvantage. The specialist is generally strong in plan, the plant, and details and fittings, and is apt to pay less attention to external design, and in some cases he relegates the latter part to an expert in draughtsmanship, with doubtful results. The elevations do not express the architect's meaning, or they are extravagant and devoid of character for the particular building. Modern architecture suffers a great deal from this subdivision of the art—plan by one, mechanical equipment and details by another, and the external elevation by a third. The trades are also conflicting, and their harmonious union is sacrificed. And this is one of the vital difficulties which the profession have to face. How are they to bring themselves again in touch with the crafts and trades connected with building, where, as we have seen, these have all become independent, either under the control of a contractor or as expert tradesmen on their own account. One in the trade recently wrote: "Except for the use of scaffolding and hoisting of machinery, is there any job which could not be worked by a manager for the architect and client as effectively as a manager or foreman now does it for a builder? With a reliable man and a depot for the hiring of scaffolding, etc., and the working of stone by stone firms, and joinery by joinery firms, the real practical builder could be on the works, the staff regulated by the size of the job. The architect would then be in touch with his work without the intermediary either as a capitalist or a clerk of the works." For a long period the big contracting firm has been an influence, and the practical builder and craftsman have had to take a secondary place; under the modern *regime* of specialism, we may again find it possible

to make our builders and craftsmen responsible men working in their own interest.

Professional education must, of course be influenced by the condition of building and the trades; by the demand for specialism, technical knowledge, and the like. These have made a higher standard of knowledge necessary for an acquaintance with manufactures and processes and scientific principles and details, which have been introduced during the last thirty years. An architect must now master a good many more trades and details of a scientific, sanitary, and industrial kind than were required of him in the first part of the last century. The materials of building are more numerous. Appliances and mechanical plants have multiplied, and these have all to be understood and applied. The old practitioner never troubled himself about floors and roofs or partitions that could withstand fire; the modern is beset with a host of patented systems. Such a thing as reinforced concrete, in which steel rods or "expanded metal" is embedded in the body of concrete, was not contemplated. The deductions of physics, chemistry, electricity all come within the modern architect's sphere, and are applied to many problems of construction. All these subjects have widened considerably the range of the architect's knowledge outside the art. Questions about acoustics, steel cantilever and dome construction; about the behavior of metal under heavy loads, heat, corrosion; the chemical value of paints and varnishes, and modes of treating iron, stone, and wood are constantly cropping up. The architect has to be constantly ready to consider questions relating to heating and ventilating arrangements, and to be able to advise as to the best system; to understand the application of electric power in buildings, lighting—subjects which were quite outside the sphere of the profession not many years ago. Although there are specialists who undertake these matters, the architect is the first one consulted, and his opinion of the desirability of a certain system ought to be based on correct views and a knowledge of general principles.

There are professional questions as to which the architect has now to make up his mind. One of these is the subject of competition. As our readers are aware, there has been much controversy about the system; a great deal of dissatisfaction about the modes of invitation, inadequate instructions, unfair decisions, and so on. The professional man of to-day ought to be able to decide for himself whether a certain competition is a fair one or not for him to take part in. The conditions issued ought to be able to afford him evidence of the fact. The selection of a design may not be a good or honest one; but that is not the point. The question is: Are the terms of the competition above board, and such that a professional man may accept them? It ought to be evident on the face of the instructions whether they are so or not. The matter is one for the profession themselves to consider. Unfortunately, it is quite true that many architects are found to enter into competitions which are obviously unfair, in which the conditions are scandalously dishonest to the profession, or the premiums are an insult. Such conduct on the part of some of the profession is discreditable to the body as a whole, and lowers considerably the public regard for it. Architects ought to be restrained from committing themselves to terms which no respectable profession would tolerate; but this restraint can only be learned by educating the members to a true sense of their vocation and responsibility. A statutory authority could control the profession, and it would do so by inculcating the value of professional conduct and making it a condition of qualification to practice. The architect ought to be able himself to discriminate between reasonable and unreasonable conditions; but the

truth is, the profession wants guidance and co-operation in these matters. Architects have not all the intellectual and moral force required; there is a want of social cohesion in their ranks which terribly weakens their power of resistance, as it does in those of lower social position. Many legal principles have to be mastered. The conditions of contract is one of them—quite a modern necessity. The practical architect is required to be conversant with points of law; it is not enough that a lawyer draws up the contract between the parties. He at least is expected to bring his knowledge of the subject to bear; he has to instruct the solicitor as to what are reasonable provisions. There are not many in the profession who can frame a contract which will give satisfaction to building owner, contractor, and architect. The disputable questions which turn on such terms as the “reasonable satisfaction” of the architect or in respect of drawings and details afterward supplied, as to the “true intent and meaning of the drawings and specifications taken together,” as to “variations and extras,” as to clauses relating to “defects,” of the completion, suspension of works, extension of time, certificates, and especially as to arbitration, can only be mastered by a general knowledge of the law, and the decisions that have been given on these points. Questions of taste are not so easily solved as those which relate to professional practice and conduct, or to public matters, or where the interests are so varied; but these all form part of the present-day equipment of the profession.

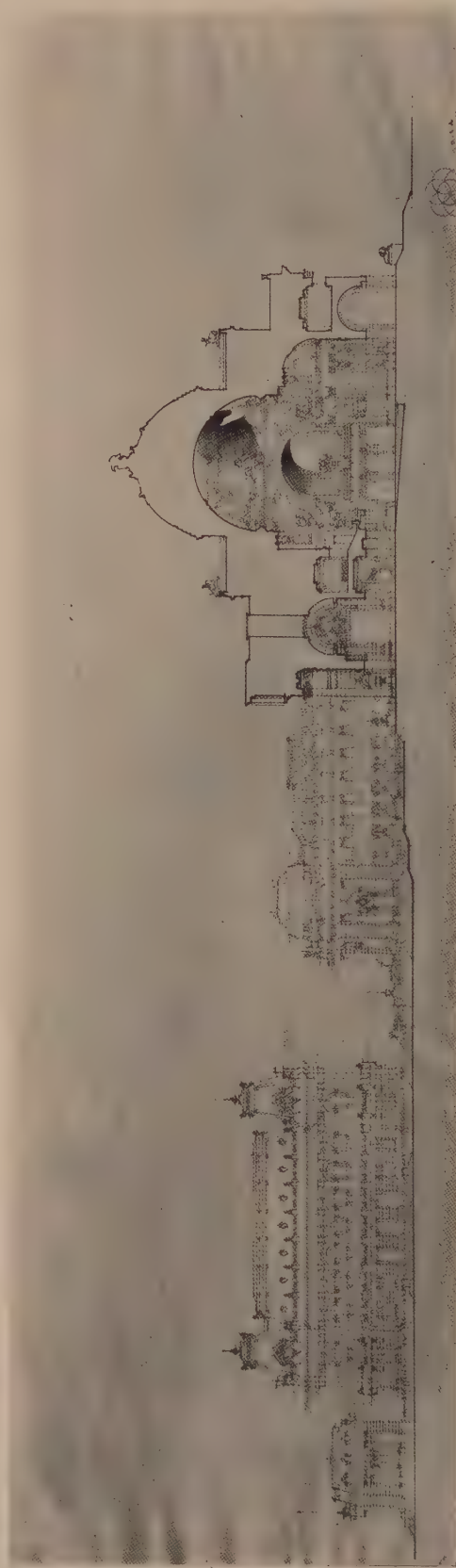
SOME THOUGHTS ON ARCHITECTURAL DESIGN.

ROBERT J. HADDON.

OF architecture as an art I would write. We may, for the nonce, pass over the many and varied aspects of professional work that exacts all too much of our daily attention in the ever-taxing fields of everyday practice—aspects that loom large, too often, in the exigencies of many a narrowed sphere and tend to obscure the larger hopes and onlooking towards the greatest and truest work of the architect. All great art is the same at its source of inspiration, and only uses technical methods for its proper and fit expression; the musician his instrument, the painter his brush, the orator his language and the architect his pencil and his material. It is clear then, at a glance, that architectural design is not begun and ended upon paper, drawing being only a necessary means to an end—a way of expressing ideas that may be solidified in the building; so that drawing is necessary, and technical knowledge is more necessary, and clear and precise experience of the uses and limitation of available materials is necessary, and, coupled with them all, a clear and practical acquaintance with the capabilities of the local artificers who are to carry out the building work is necessary. And first, as to the source of true art. Where shall the architect seek for those powers that shall make him a master of architectural design? I would not set a limit to any man's field of education, for who can know the secret sources of another man's inspirations—of the powers and influences that have made him? True it is that no man is made in a day, and perhaps not in a generation, and even at the back of our investigation we are confronted (often against our will) with the dominant fact that the gods give to whom they will—some to be technical plodders, some to know the mystery of beauty and to express it in the solid stones. I can only give my own thoughts, and you can in the criticism, I hope, give yours to correct my errors. Let us then seek ever the inspiring power of Nature and of the old architecture, for it is art we seek. It is popular to ask, “What is art?” and to expect

that the answer could be given in a word as easily as the question. But art, like all great things, cannot be explained in a word. “What is truth?” is easy to ask from Pilate through all the ages; but who has answered the question? And “What is art?” is the questioning inquiry of æsthetic thinkers through all the years since our savage progenitors scratched their rude pictures upon the primitive rocks. But what is art? The tangible expression of an artistic idea. And who are artists? Those to whom the gift has been given of reducing to solid being and expression the ideal of beauty of form, color and sentiment that find their echo and appreciation in the minds and emotions of those who, in a degree, are like-minded. It is at the source we need educating—the development of the soul, the creative instinct, the vision-seeking Ego. For in so far as we are true to that, so is our work good, worthy of the appreciative thought of others and worthy to remain. But when we yield to our banking account and the commercial spirit of the age, we fail. A man whose work is never greater than the regulation 5 per cent. upon the outlay will never be a great architect. I am aware that this is an uncommon way of giving “Thoughts upon Architectural Design,” and your minds may revert to the old training course of drawing from the east, studying the antique, measuring old work, office practice, knowledge of materials and construction, and skill in geometrical working drawings; yet you must be aware that a man may have all these things and yet not be a designer. Knowledge of the keyboard does not make a musician, nor knowledge of a color-box an artist; and there is another thought that would appear at first sight to be a somewhat discouraging one to our students; we like to think that hard work and application will win all, but experience tells a somewhat different tale. The designer is more often than not born, not made. He holds the gifts of the gods. Develop that gift he must or he fails; but when developed his one stroke will have more power than twenty strokes of the other man; and so it is of all the arts; the gods give to whom they will, which is a mystery we know not of, and, secondly, as to the designers' outlook. We live as architects essentially in a commercial age, and to live must needs in a measure conform to the spirit of the age, lest we become obsolete and be carried away on the tide—the rushing, resistless tide—of popular demand, and be lost. We can, in a great measure, and we should, I think, be true to Art, and yet true to our own age. Architecture has fallen! And why? Because she has been too much the copier of dead forms that have had their day. Not for a moment would I think less of the classics, but we need not in our day the dead forms of dead men, but the living, vitalizing expression of live men's ideas. The old designers were true to their own age—let us be true to ours. We copy the old work too much—no, not too much, we can never go over those lines of truth and beauty too often; but we linger too long—we stay when our own stroke should be made, too timid, too overawed by what we have seen to trust ourselves. It would be presumptuous, we think. How can we hope to do anything but copy? But the man who fails after careful study to dare to put down his own line, however unsteady that line may be, is lost as a designer. Art needs the stroke of every true man's pencil, the courage of every individual's personal expression; and until she receives that our designs will be commonplace, dull, uninteresting and merely the echoes of the thoughts of others applied to the problems of other days—needs that have in a great measure had their day and ceased to be. The design problems of our day are not the problems of

(Continued page 125.)



ELEVATION AND SECTION, A CENTRAL ENTRANCE MOTIVE FOR A COURT OF HONOR.

BEAUX ARTS SCHOLARSHIP AWARDED TO G. A. LIGHT, ATELIER FREEDLANDER.

(Continued from page 123.)

the past, and no wise man will seek to answer to-day's questions with last century's practice, save that history and experience may help him to the better understanding of his task. Think for a moment of the difference of our architectural needs. Greek Art was perfect in its way, but its sphere was very narrowed and was limited by a one-story temple. Rome, with all her gigantic architectural and engineering works, had no need for the great office buildings, so vital a part of every modern city. And mediæval life, quaintly seen from the distance of time, produced the Baronial Castle Fortress, but little needed in these days of popular liberty. Religious architecture, of all the arts, clings most, perhaps, to its traditional past and ancient forms, and therefore can be the more used in the present, save that in the modern ritual there is more of preaching and less of ambulation, which would almost appear to demand the removal of the column in the body of the auditorium of modern church buildings. In this connection we should, however, remember that great design has in it many of the attributes of the gods common to all times, deep with a sense of fitness and wide with a universality of beauty. And, thirdly, as to the designers actual work. A word should be said about style. As experience grows upon the mind, one is more inclined to pass aside those fixed ideas of working in one distinct style that fasten themselves so closely around the student mind as being the right and proper sphere of the designer. In this thought we break away from one of the very strongest traditions of our calling and one that has doubtless led the profession into the danger of being the progenitor of dead forms—a profession without vital and progressive life. Some men follow a school and find strength in banded numbers working upon similar lines—that is well. Others are strong in individual strength and dare to be original, and that is better; they are the founders of schools. My plea is for each building to be considered purely upon its own merit, without bias or prejudice. In method of work I have seen the value of what may be called the "modelling mind." The "modelling mind" is not the perfecting of a plan or a series of plans of the intending building, but the gradual and altogether building-up of the design as a whole in the mind, and if you will, upon the paper. The clear working out of mass as to convenience, height, comparative position, elevation, skyline, construction, material color and the rest. There is common belief that any one can make a plan, but a designer is required for the elevation. I take it a designer is required for the whole, and when a design is thus conceived one can no more take from or add to it than the artist painter can obliterate some part of his work upon the canvas without destroying the harmony and balance of the whole picture. While in this attitude of mind it is well to remember a few main principles: Seek truth. Be true to your materials. Study mass. Let Nature do all she can with the exteriors with her sunlight and her shadows. Study color and its harmonies. Know the unfailing value of a plain surface. If you ornament, know the value of clustered enrichments. Never be afraid of simplicity. Thread something through the whole, like one finds in great music and great painting—a touch of life that makes the whole akin; and when the design is completed and properly and practically expressed by scale drawing and details and explained by complete specifications, have tenacious belief in it and swerve not from the definite purpose that it be carried out as shown. Nature is always teaching us something about *line*, and this of itself is a fascinating study that we may note in passing. There are lines that express all the various sentiments and emotions,

such as dignity, solidarity, movement, true balance, aspiration, mystery, rest, and so on, and these the designer plays upon. In church design he needs very specially the vertical line, the clustered length of upright pier, the mystery of narrowed interlacing traceries and dimness of lofty roof, so charming in the Gothic. In the house design the line of rest is best introduced—the horizontal line—the line we find in nature most often by the placid waters of broad rivers when the sun is low. Let repose prevail, and while seeking stateliness in the larger houses, and especially in those parts of the house more specially built for entertainment, see to it that in the living-rooms the level line be much seen.

The Society of Beaux Arts Architects

INCORPORATED 1894.

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THE award of the Beaux Arts Scholarship was made on July 21st to George A. Licht of Atelier Freedlander, and second place was given to W. D. Crowell of Atelier Despradelles. This scholarship which represents a value of two thousand dollars is for the purpose of defraying the expenses of the winner in two years of travel and study abroad. Three competitions have been held, from the first of which the fifteen students of the Society who had received the highest number of values in previous work were excused. The first preliminary competition consisted of a twelve hour esquisse-esquisse en loge, and was held April 16th, simultaneously in New York and in eight other cities in different sections of the country. It was open to all candidates under twenty-eight years of age, and as a result five were chosen, who, with the fifteen mentioned above became eligible for the second competition. The programme for the first trial problem follows:

THE CENTRAL ENTRANCE MOTIVE FOR A COURT OF HONOR.

The subject of the present problem is the monumental entrance to the court of honor of a government building which is made by the main building and its two wings forming three sides, and a covered passageway, colonnade or arcade forming the fourth side, in the centre of which is the entrance. One bay only of this passageway on either side of the entrance motive need be shown. The conditions are:

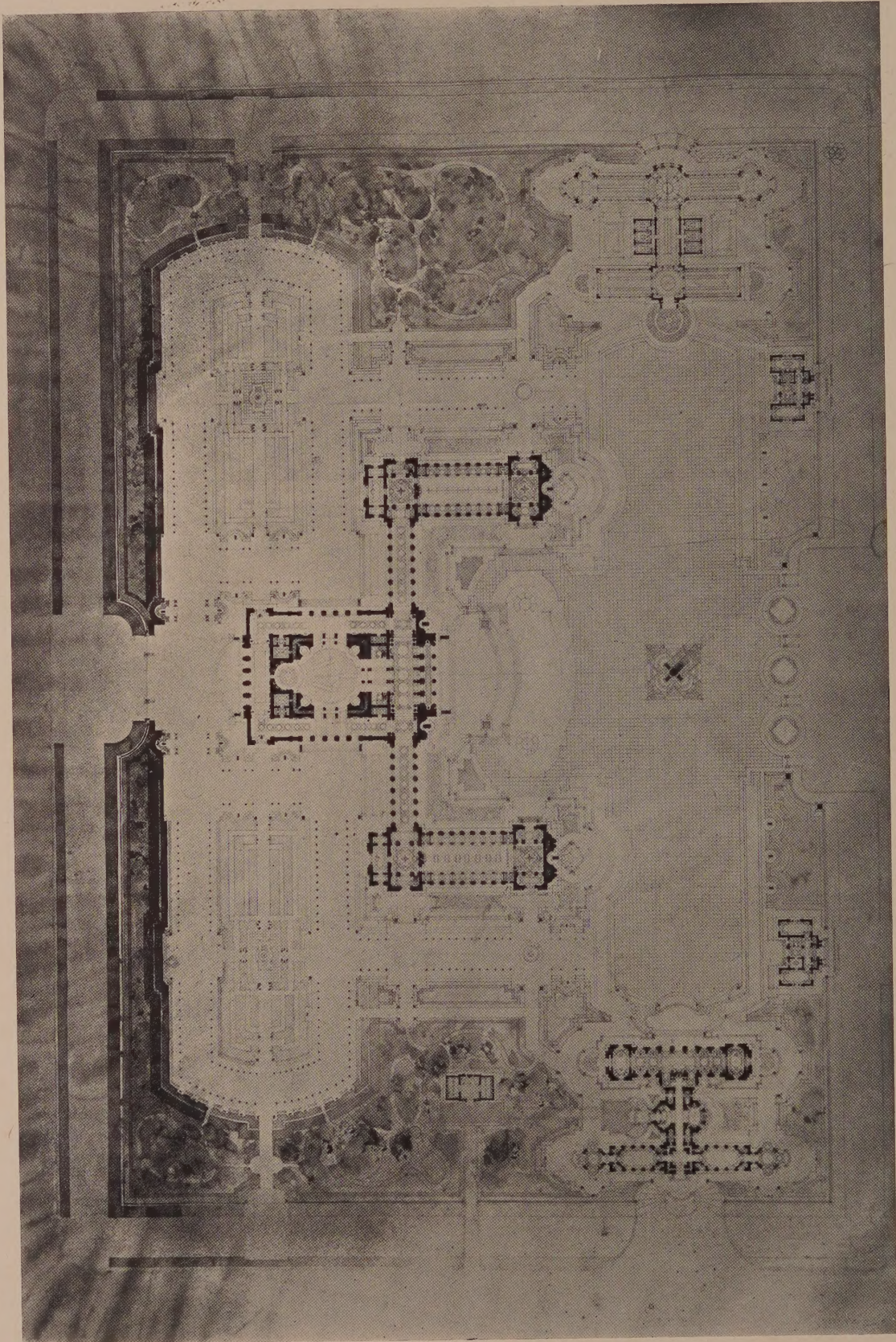
- 1st. A central vaulted driveway.
- 2d. Passages for pedestrians on either side into the court and communicating with the covered passageway.
- 3d. The width of driveway to be 15 feet.
- 4th. The composition to include one of the classic orders.

Drawings required: A plan, elevation and section at $\frac{1}{8}$ inch scale; the elevation must be rendered in monochrome with conventional shadows cast.

EDGAR V. SEELER.

The second preliminary competition was a twenty-four hour esquisse-esquisse en loge, held April 23d, in New York and Boston,

(Continued page 127.)



PLAN, A CENTRAL ENTRANCE MOTIVE FOR A COURT OF HONOR.

BEAUX ARTS SCHOLARSHIP AWARDED TO G. A. LIGHT, ATELIER FREEDLANDER.

(Continued from page 125.)

and from the twenty participants the following were selected to compete in the third and final competition :

Armstrong, W. T. L.	New York	Atelier Hornbostel
Crowell, W. D.	Boston	Atelier Despradelles
Hirons, F. B. (withdrawn) . . .	Boston	Atelier Despradelles
Licht, G. A.	New York	Atelier Freedlander
Smith, L. E.	New York	Atelier Barber
Lebeis, E. H.—1st Alternate . .	New York	Atelier Barber
Ogden, P. H.—2d Alternate . .	New York	Atelier Barber
De Mari, Walter—3d Alternate .	New York	Atelier Hornbostel

The programme for the second trial problem follows :

AN ESTABLISHMENT FOR BATHING.

A western gentleman of great wealth was much impressed, on his travels, with the stupendous remains of the thermal establishments of antiquity ; and has determined to build and endow, for his own town, baths after the antique model, believing that in our time, such institutions, if known, would become as popular with us as they were with the Romans. In furnishing an endowment, it is not his intention that the baths shall be free ; nor are they intended for the poor ; but the endowment is to aid in maintaining them on a more liberal scale than would otherwise be possible.

As a site for the proposed building, he has secured an entire rectangular block bounded on all sides by streets, the principal one of which runs along the bank of the river which divides the city into two unequal parts. The general level of the roadway is about 15 feet above the water, the embankment is of stone, and it is intended to construct a stone bridge 80 feet wide, which shall abutt opposite the centre of the block. The dimension of the plot on the river side is 300 feet, and its depth is 500 feet. The requirements are :

No. 1. An entrance hall, vestibule or waiting room, area about 5000 square feet.

No. 2. Dressing rooms, which may easily be reached from No. 1. They may, if convenient, be arranged in two groups and in several tiers or stories, and should accommodate at least 500

people at a time ; each person to have a dressing room, or cubicle, of not less than 35 square feet area.

No. 3. A hall for gymnastic exercises ; area about 6,000 square feet. Easily reached from No. 2.

No. 4. A hall for indoor games or fencing, area about 6,000 square feet. Easily reached from No. 2.

No. 5. Indoor plunge, area about 5,000 square feet, exclusive of surrounding platforms and porticoes. Easily reached from No. 2.

No. 6. Hot room, area about 3,000 square feet. It is desirable that this should be in close proximity to No. 5.

No. 7. Very hot room, area about 800 square feet ; should adjoin No. 6 and No. 5.

No. 8. Steam room, area about 800 square feet ; should adjoin No. 5.

No. 9. Massage room, area about 5,000 square feet, containing at least 40 marble lined compartments of 35 square feet area each ; also needle baths, showers, etc. Should connect with No. 5.

No. 10. Drying and Rubbing room, area about 3,000 square feet. Should connect with No. 5.

No. 11. Cooling room, area about 3,000 square feet. Should connect with or be within easy access of No. 5 and No. 10.

No. 12. Room for electric and other baths. Area about 2,500 square feet.

No. 13. An out of doors plunge of about 6,000 square feet, exclusive of surrounding porticoes and other decorative or useful features which may suggest themselves as desirable, such as running track, open air exedras, hemicycles, space for out of door games, etc.

No. 14. Lecture Hall, area about 2,500 square feet.

No. 15. Library and Reading room, area about 2,500 square feet.

No. 16. Sundry small rooms, as offices for the administration, and for the reception of visitors.

No. 17. Toilet rooms conveniently disposed.

If the space permits, there may be court yards surrounded by porticoes or otherwise ; or any unoccupied space may be disposed in lawns about the building.

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The drawings required are: A plan, a section, and an elevation, at a scale of $\frac{3}{8}$ inch to the foot.

ERNEST FLAGG.

The final problem was a plan project for which twelve hour sketches en loge were made May 14th, in New York City only and the competitors were allowed until July 19th, for their finished drawings which were rendered en loge in the four weeks preceding. Each of the unsuccessful competitors was given a prize of one hundred dollars. The programme for the final problem follows:

A COLONIAL INSTITUTE.

To be located in Washington, on a lot 800 feet by 1200 feet with streets all around, and the long exposure to the north and south. Graduated students of Colonial College would meet there prominent men of this country during their post-graduate course, and would get familiar with the institutions and characteristics of the country. At the same time, people of the United States would get acquainted with the representative people of the tropical dependencies, understand them, and by that mutual acquaintance develop feelings of esteem and friendship so necessary to harmonious and progressive relations.

This institute would consist of three distinct groups of buildings not necessarily disconnected.

1st. The Administration.—Residence for President and family. Lodging for two Secretaries. Residence should be large and afford ample room for the accommodation of a few invited guests. The office building should consist of rooms for Secretaries' offices, Information Bureau, Record Rooms, Janitor, one Committee Room, etc.

2d. Library-Museum.—Large library room, beautifully decorated; four private studies; two galleries (rooms) to show in elaborated glass cases, minerals, precious stones, resources of Colonial countries, the walls decorated with tropical views. One large lecture room seating 1200, to be used also for graduating exercises, etc. Small dressing room for lecturer.

All this part of the Institute to be treated monumentally and so arranged that it could be thrown into one on important occasions.

3d. Botanical Garden.—Where would be shown plants of the United States, which could be introduced in the Colonies, and large green-houses where tropical plants could be kept and studied. Small aquarium in them for the study of fish. Six class rooms or studies adjoining. The Garden does not necessarily need to be a motif by itself. It could be arranged as a setting to the buildings of the institution.

The arrangement of stories, one or several in each part of the institute is left to the judgment of the competitors. Toilet rooms should be provided where needed. In some prominent location, court or garden, a monument or fountain to "Civilization bringing peace to uncivilized countries" will be located.

For the esquisse give a general plan at $\frac{1}{8}$ inch scale. Facade and section at the same scale. The esquisse must be done in ink.

For the finished drawings give two plans of 1st and 2d floors, one main facade, one side facade, and one longitudinal section, all at $\frac{1}{16}$ inch scale; and a detail of the facade at $\frac{1}{2}$ inch scale to make a drawing about 3 feet by 4 feet in size.

E. L. MASQUERAY.

INFLUENCE OF COMMERCE UPON ART.

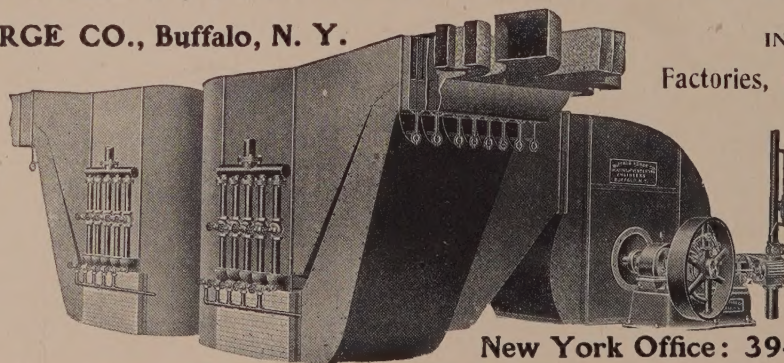
IF Mr. William Morris had published his essays on the Arts and crafts in dialogue form, the profession and the public would have more readily apprehended the force of the doctrines he so fervently advocated. He protested strongly against the influence of commerce upon art; he showed that tradition has transferred itself from art to commerce; that "the end proposed by commerce is the creation of a market demand and the satisfaction of it when created for the sake of the production of individual profits." He convinced all thinking men that to the commercial producer the actual wares are nothing; their adventures on the market everything. To the artist the wares are everything; his market he does not trouble about. Morris was always advocating the necessity for artists to become as good craftsmen as possible; if we cannot be good craftsmen in one line, to go down to the next, find our level in the arts and be good in that, for if we are artists at all we shall be sure to find out what we can do well, even if we cannot do it easily. The aim of this great art reformer was to make art again the heritage of the people, to bring the craftsman and the artist together and to make man's work no longer a toil for him.

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